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(54) **ILLUMINATION SYSTEM**

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(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**

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F21V 23/00	(2015.01)
F21V 23/06	(2006.01)
F21W 121/00	(2006.01)
F21W 121/04	(2006.01)

(52) **U.S. Cl.**

CPC ***F21V 23/06*** (2013.01); ***F21S 4/10*** (2016.01); ***F21V 19/0005*** (2013.01); ***F21V 23/001*** (2013.01); *F21V 19/0035* (2013.01); *F21W 2121/00* (2013.01); *F21W 2121/04* (2013.01)

(58) **Field of Classification Search**

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See application file for complete search history.

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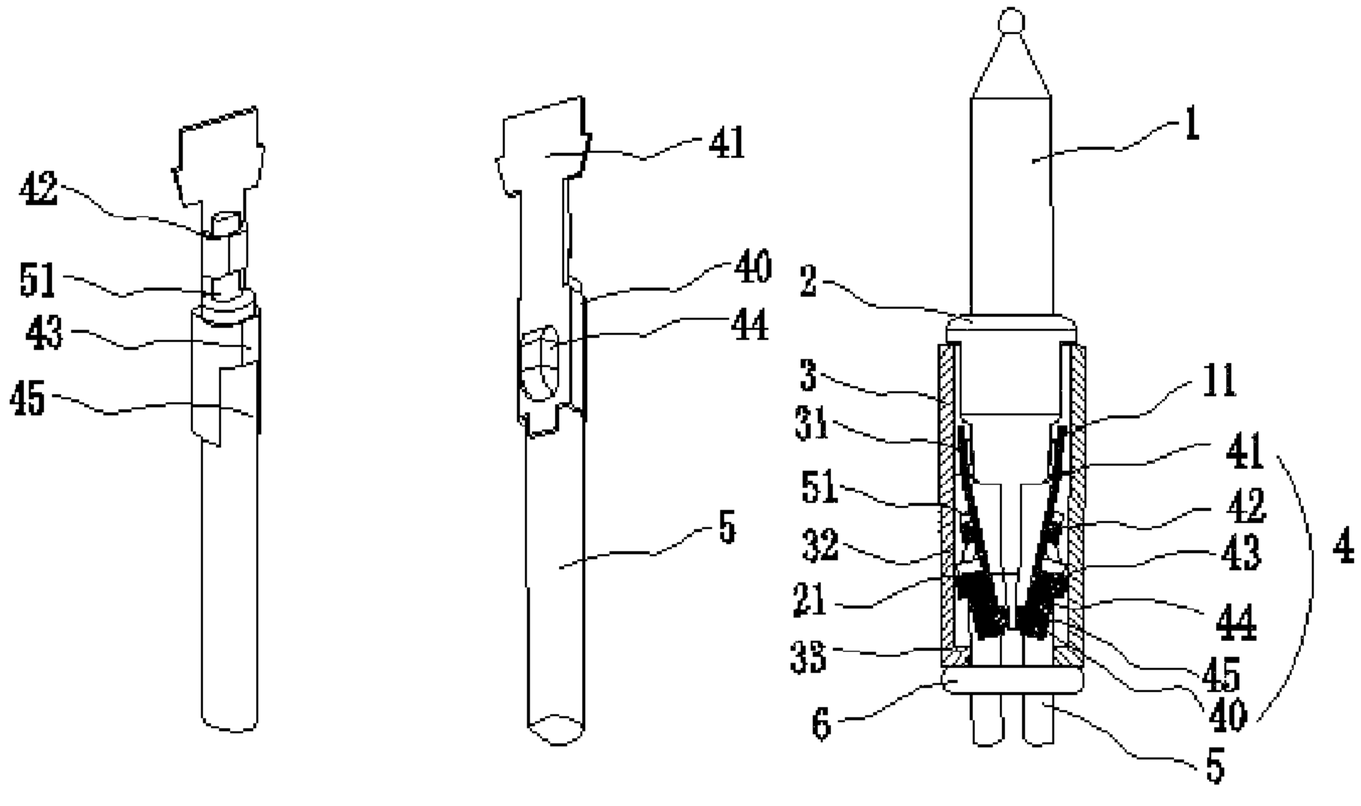
(57) **ABSTRACT**

An illumination system operable for use as a string of Christmas lights may include a plurality of lamps connected in series. Each lamp may include a lamp luminary, a lamp stem, a lamp holder, and a pair of cables connected to the lamp holder. The lamp stem may have an insertion portion. The lamp holder may have an accommodation space formed therein. When the lamp stem is disposed in the accommodation space, the insertion portion may be clamped between a pair of first protrusions to separate the protrusions. When the lamp stem is removed from the accommodation space, the pair of first protrusions may resume contact through the elastic nature of the cable and the protrusions. The illumination system may be simple in structure and may be convenient for use.

19 Claims, 4 Drawing Sheets



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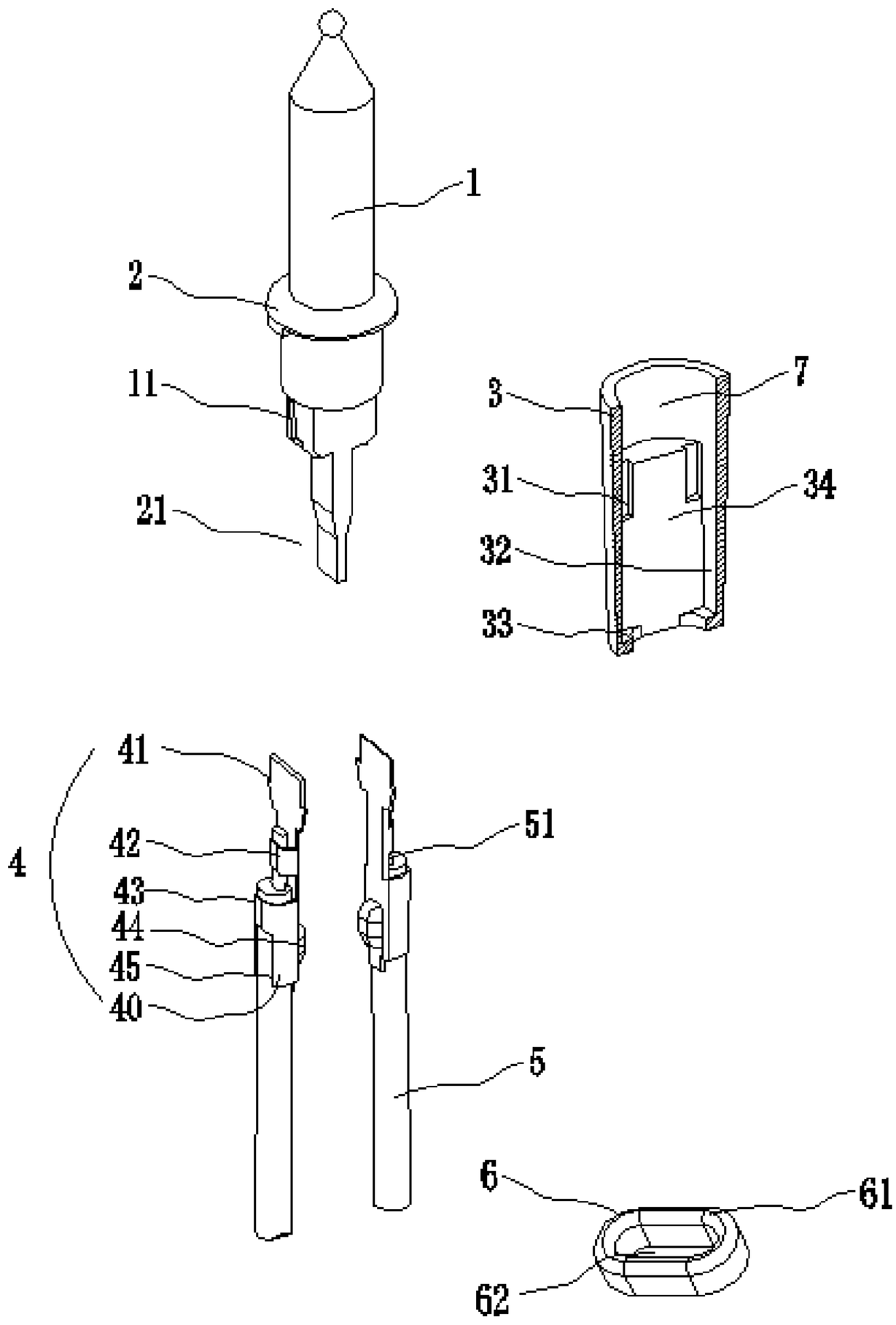

Figure 1

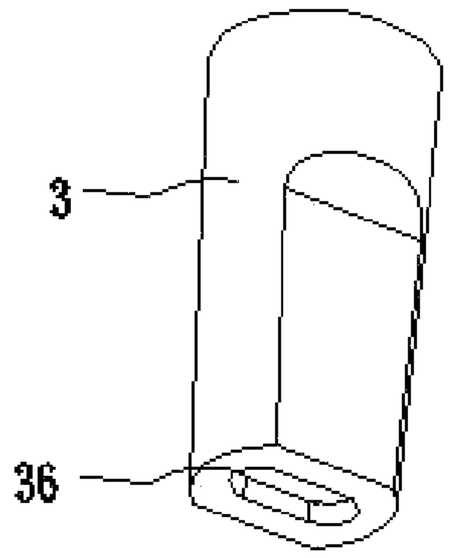

Figure 2

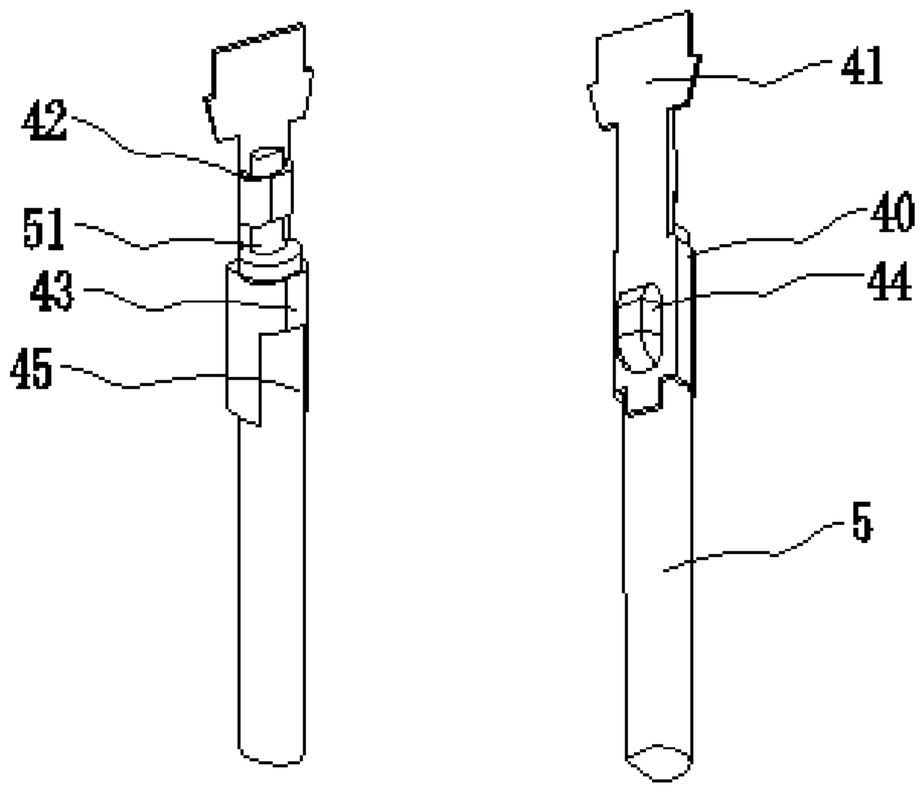

Figure 3

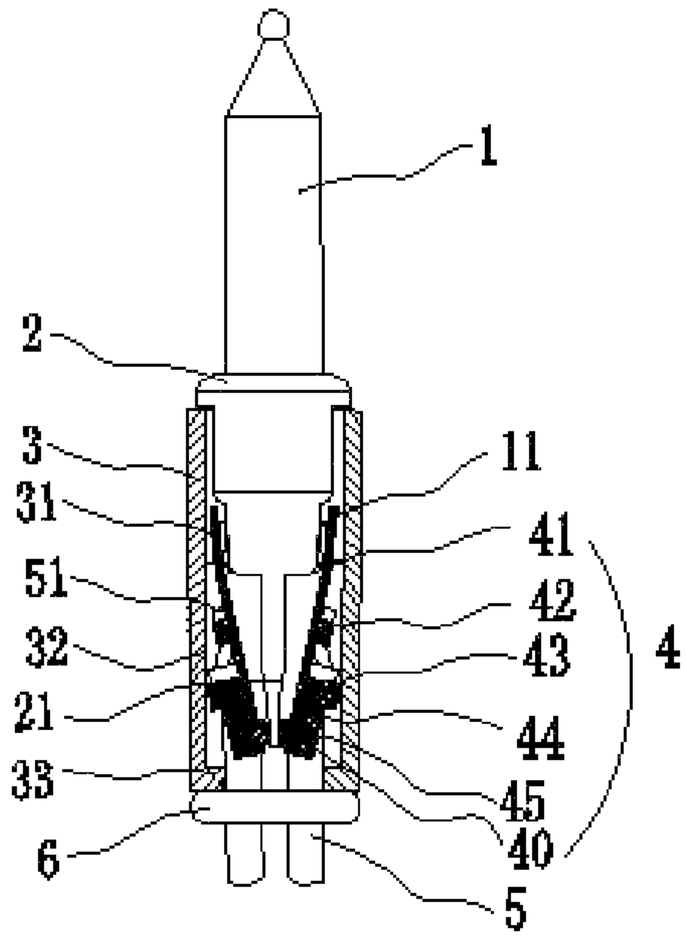

Figure 4

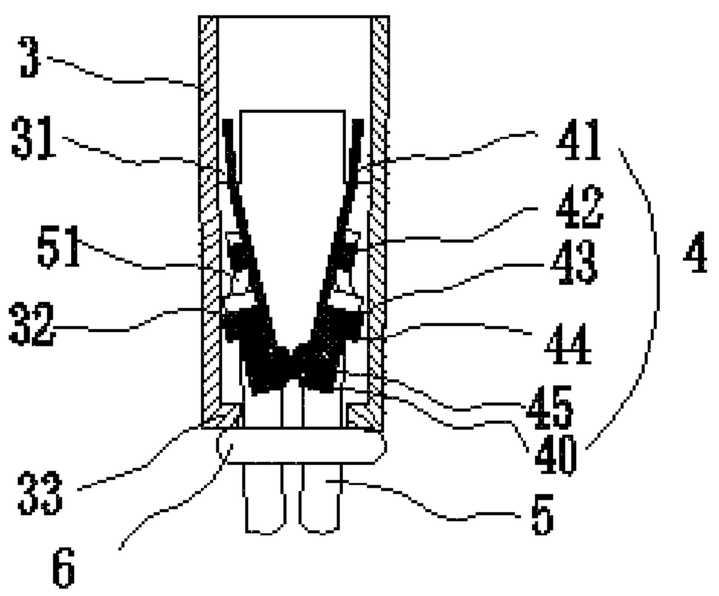

Figure 5

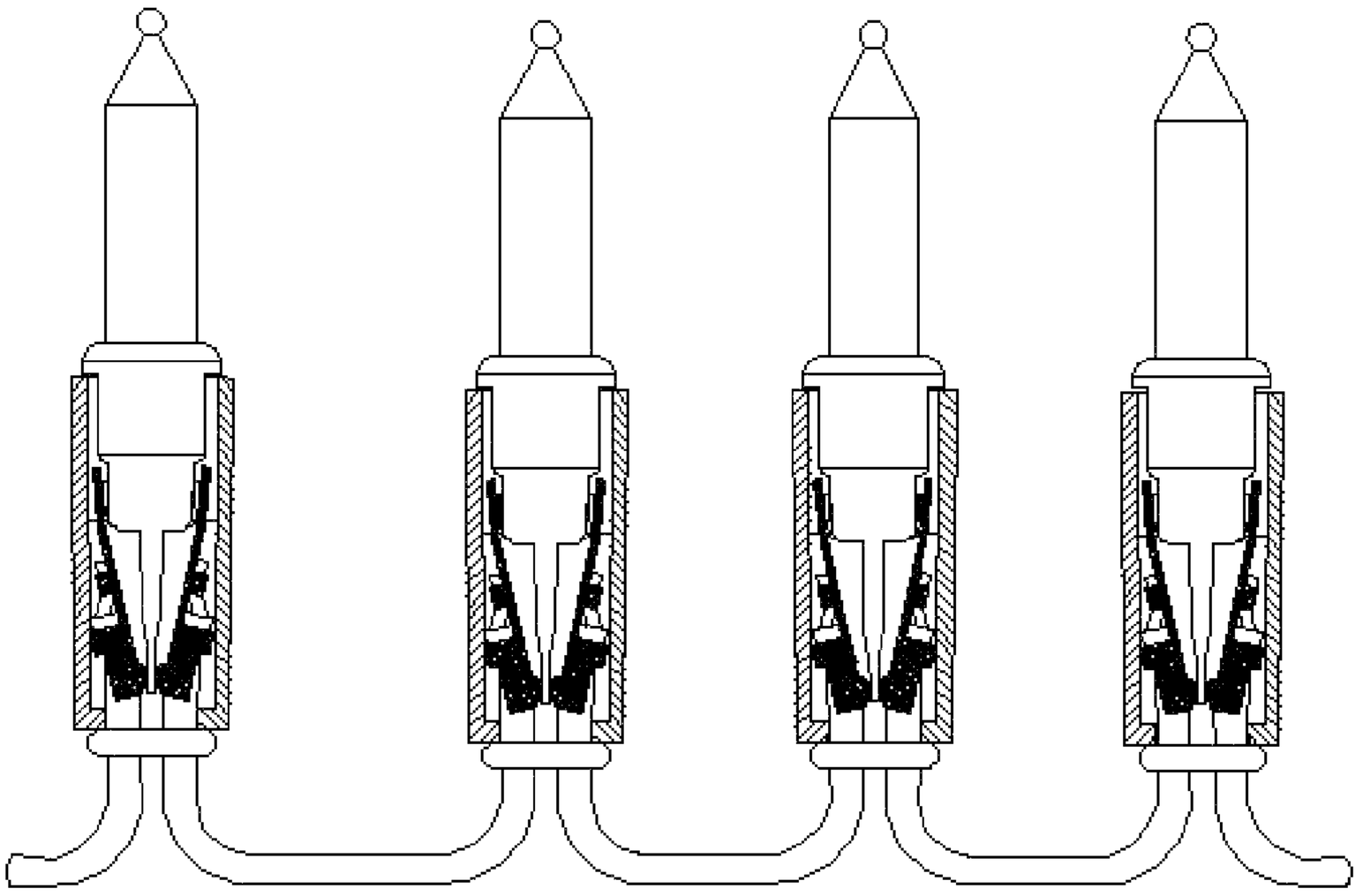

Figure 6

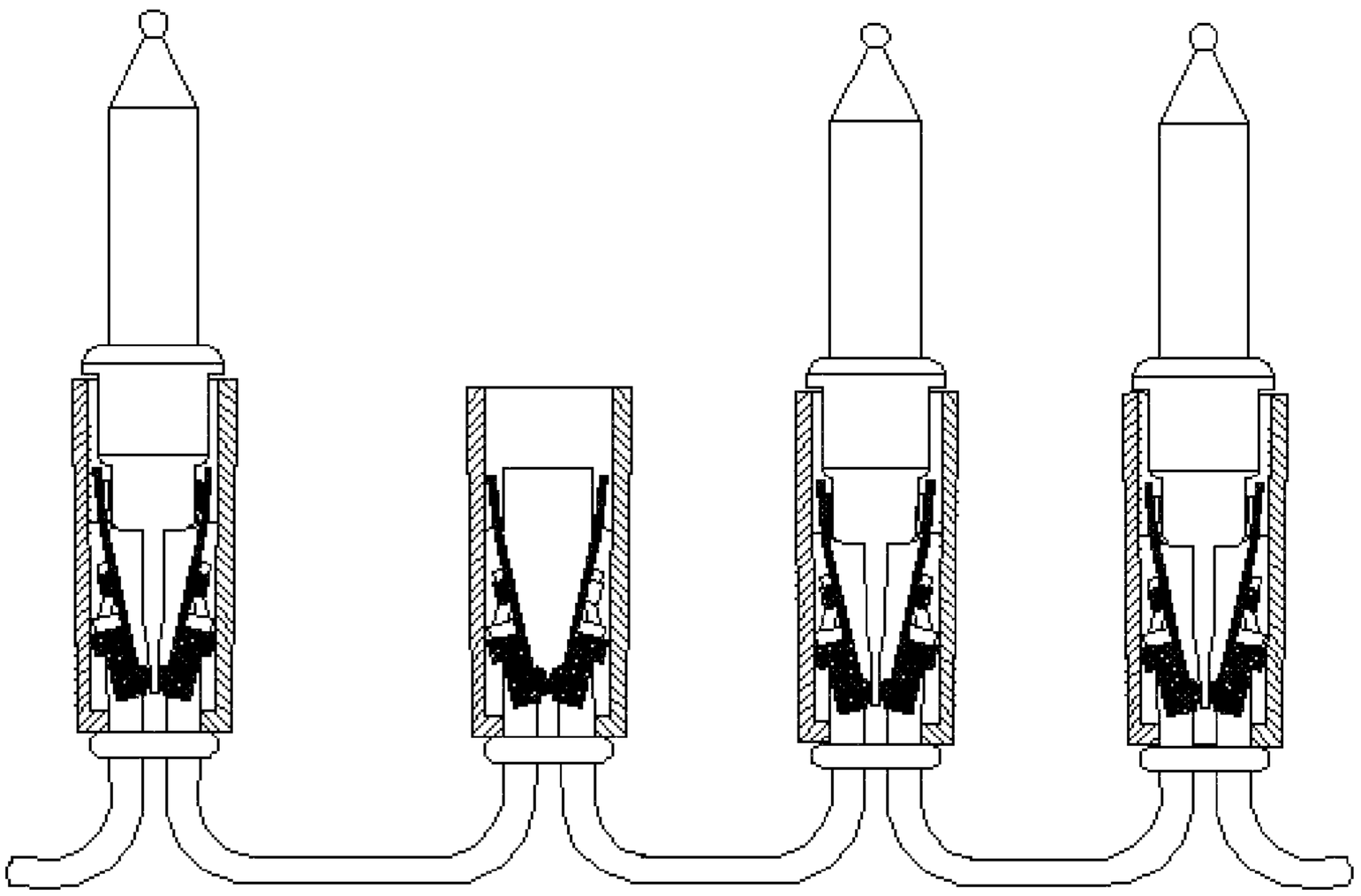

Figure 7

ILLUMINATION SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority under 35 U.S.C. §§ 119(a) and 120 to U.S application Ser. No. 13/926,339, on Jun. 25, 2013, which claims priority to Chinese application no. 201320068948.8, filed on Feb. 4, 2013, in the Chinese Patent Office, both of which are incorporated by reference in their entirety as if set forth in full.

TECHNICAL FIELD

The disclosure relates to an illumination lamp, and more particularly, to an illumination lamp system suitable for use as a Christmas lighting.

BACKGROUND

An illumination system may achieve simultaneous working of a plurality of lamps mainly through a series connection of the lamps. However, when one of the lamps fails to work properly due to a fault, or when the lamp stems is removed from the lamp holder of the illumination lamp, such a series connection structure may exhibit abnormal working. The result requires the disconnection of the entire series lamp string connected to the defective lamp. Therefore, such a series connection structure is inconvenient to use. Current electronic shunt devices may overcome the above problems regarding the power supplied to the lamps by connecting each of the lamps in parallel. Thus, when one of the lamps fails, other lamps may still function properly. However, such a structure likely consumes a large amount of electrical energy and may be costly to operate. Other illumination lamps may connect lamps in series to achieve contact between the terminals by enabling the terminals to contact each other through means of external drive after the lamp stem is removed. Such structures are relatively complicated and inconvenient to carry out.

SUMMARY

The present disclosure may advantageously provide for an illumination system, operable for use as a Christmas lighting, with low electric energy consumption, low cost, simple structure, and convenience of operation. The present disclosure may advantageously address many of the problems in embodiments with high power consumption, high cost, complicated structures comprising series of lamp strings, and embodiments that are difficult to operate. The present disclosure may advantageously allow for an illumination system wherein after one lamp fails and the lamp stem thereof is removed, other lamps may still function properly.

The present disclosure may address the aforementioned technical problems by providing an illumination system that may comprise a plurality of lamps connected in series, wherein each of the lamps may comprise a lamp luminary, a lamp stem may retain the lamp luminary, a lamp holder, and a pair of cables that may be connected to the lamp holder, wherein the lamp stem may have an insertion portion, wherein the lamp holder may have an accommodation space formed therein, wherein each of end portions of the pair of cables may be provided respectively with a conductive terminal which may be electrically connected with the cable and internally accommodated in the accommodation space, wherein each of the terminals may be provided with a conductive first protrusion thereon, and wherein a pair of the first protrusions may be disposed oppositely and the pair of the first protrusions may contact one another or separate from each other. When the lamp stem is accommodated in the accommodation space, the insertion portion may be clamped between the pair of the first protrusions to separate the pair of the first protrusions. When the lamp stem is removed from the accommodation space, the pair of the first protrusions may elastically resume contacting one another.

The accommodation space may be provided with a tubular first accommodation space in an upper portion, and a second accommodation space in lower portion which may be enclosed with two opposing planar walls extending upwardly from the bottom and arc-shaped walls connected with the planar walls, and the shape of the accommodation space may be adapted to the outer profile of the lamp stem.

Each of the upper ends of the terminals may be provided with a lamp pin contacting portion, and the accommodation space may be internally provided with seizing portions to seize the lamp pin contacting portions.

Each of the upper portions of the terminals may be provided with a first fixing portion, a copper wire protrudes from each of top ends of the cables, and the copper wires may be fixed on the first fixing portions to achieve electrical connection between the terminals and the cables.

Each of the lower ends of the terminals may be provided with a tubular second fixing portion, and each of the cables may go through and may be disposed within the second fixing portion. Each of lower ends of the second fixing portions may be further provided with a U-shaped notch which enables swinging of the cables along radial direction of the second fixing portion. The U-shaped notches may face toward the arc-shaped walls.

At least one second protrusion may be further provided on each of outer sides of the terminals, the second protrusions may lean against the arc-shaped walls.

Each of the second protrusions may be an elastic member with an arc-shaped surface.

The terminals may be obliquely disposed within the accommodation space, and the two terminals may exhibit a V-shaped structure.

The lamp holder may be provided with a first tightening portion on bottom end to make the pair of the cables go through the tightening portion and to tighten the pair of the cables. The first tightening portion may have at least one arc-shaped step protruding inwardly along bottom face of the lamp holder.

The lamp holder may be further provided with a second tightening portion on the lower portion to tighten the pair of the cables; and the second tightening portion may have a through hole, and the pair of cables may be connected with the lamp holder by going through the through hole.

The implementation of the illumination system of the present disclosure, operable for use as a Christmas lighting, may have the following beneficial effects: by oppositely disposing the conductive first protrusions on a pair of terminals, clamping, at the same time, the lower end of the lamp stem between a pair of the first protrusions; making the pair of the first protrusions contact one another upon the remove of the lamp stem due to the obliquely disposing of the terminals; and meanwhile disposing a second protrusion which may be an elastic member on each of outer side of the terminals, wherein when the lamp stem is inserted in, the elastic member may be in a pressed state; and when the lamp stem is removed, the resilience of the elastic member and the tension of the cables may enable the pair of the first protrusions to contact more easily so as to maintain the

whole current circuit in an on-state. The illumination system of the present disclosure may be convenient to use and easy to manufacture, and may have stable properties and low cost.

BRIEF DESCRIPTION OF THE DRAWINGS

Further illustration will be made in conjunction with the following Figures and Examples, in which:

FIG. **1** depicts an exploded schematic drawing of a lamp of the illumination system according to an embodiment of the present disclosure, in which the lamp holder is in a cutaway view;

FIG. **2** depicts a whole structural schematic drawing of the lamp holder of the illumination system according to an embodiment of the present disclosure;

FIG. **3** depicts a structural schematic drawing of the cables and terminals of illumination system according to an embodiment of the present disclosure;

FIG. **4** depicts a cutaway view of the lamp stem being inserted into the lamp holder of the illumination system according to an embodiment of the present disclosure;

FIG. **5** depicts a cutaway view of the lamp stem being removed from the lamp holder of the illumination system according to an embodiment of the present disclosure;

FIG. **6** depicts a structural schematic drawing of a plurality of the serially connected lamps of the illumination system according to an embodiment of the present disclosure; and

FIG. **7** depicts a structural schematic drawing of pulling out a lamp luminary and a lamp stem from a plurality of the serially connected lamps of the illumination system according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

As shown in FIGS. **1**, **2** and **3**, the present disclosure provides an illumination system which may comprise a plurality of lamps connected in series, each of the lamps comprising a lamp luminary **1**, a lamp stem **2** retaining the lamp luminary **1**, a lamp holder **3** and a pair of cables **5** connected to the lamp holder **3**. The lamp stem **2** may have an insertion portion **21**, the lamp holder **3** may have an accommodation space **7** formed therein, each of end portions of the pair of cables **5** may be provided respectively with a conductive terminal **4** which may be electrically connected with the cable **5** and internally accommodated in the accommodation space **7**, each of the terminals **4** may be provided with a conductive first protrusion **44** thereon, a pair of the first protrusions **44** may be disposed oppositely and the pair of the first protrusions **44** contact one another or separate from each other. When the lamp stem **2** is accommodated in the accommodation space **7**, the insertion portion **21** may be clamped between the pair of the first protrusions **44** to separate the pair of the first protrusions **44**. When the lamp stem **2** is removed from the accommodation space **7**, the pair of the first protrusions **44** may elastically resume contacting one another.

Specifically, contact copper wires **11** for connecting with the lamp luminary **1** are provided on either side of the lamp stem **2**, the insertion portion **21** may be made of insulating material. When the lamp stem **2** is inserted into the inner portion of lamp holder **3**, the insertion portion **21** may be clamped between a pair of the first protrusions **44**, as shown in FIGS. **4** and **6**. In this configuration, the contact copper wires **11** may be in contact with the terminals **4**, through the cables **5** and terminals **4**, the lamp luminary **1** may be powered on and in a working state. When the lamp stem **2** is removed together with the lamp luminary **1**, as shown in FIGS. **5** and **7**, the contact copper wires **11** may be detached from contacting with the terminals **4**, and at this time, the two first protrusions **44** may resume the state of contacting one another, which may make the current circuit a complete one after the lamp stem **2** is removed, and the working of other lamps connected in series with this lamp may not be influenced.

As shown in FIG. **1**, the accommodation space **7** may be provided with a tubular first accommodation space in upper portion, and a second accommodation space in lower portion which may be enclosed with two opposing planar walls **34** extending upwardly from the bottom and arc-shaped walls **32** connected with the planar walls **34**, and shape of the accommodation space **7** may be adapted to outer profile of the lamp stem **2**.

One of ordinary skill in the art would understood that, one may prevent lamp stem **2** from swinging by making the shape of the accommodation space **7** adapted to the outer profile of the lamp stem **2**. Meanwhile, the width of the space formed between the two planar walls **34** may also be adapted to the width of the portions of the terminals **4** disposed in the space, which may prevent the portions of terminals **4** from swinging within the space.

Each of upper portions of the terminals **4** may be provided with a first fixing portion **42**, a copper wire **51** may protrude from each of top ends of the cables **5**, and the copper wires **51** may be fixed on the first fixing portions **42** to achieve electrical connection between the terminals **4** and the cables **5**.

Specifically, the way of the first fixing portions **42** fixing the copper wires **51** may be folding the conductor portions extending from the upper of terminals **4**, encircling the same with the copper wires **51** and pressing the copper wires **51** tightly. The copper wires **51** protruded and disposed on the top ends of the wires **5** may be exposed by removing the insulating layer of the top ends of cables **5**. At the same time, one of ordinary skill in the art would understood that, the way of tightening the copper wires **51** tightly on the terminals **4** may also be achieved by adhesion with conductive adhesive or by other ways.

Each of lower ends of the terminals **4** may be provided with a tubular second fixing portion **40**, and each of the cables **5** goes through and may be disposed within the second fixing portion **40**. Each of lower ends of the second fixing portions **40** may be further provided with a U-shaped notch **45** which enables swinging of the cables **5** along radial direction of the second fixing portion **40**. The U-shaped notches **45** may face toward the arc-shaped walls **32**.

One of the purposes of disposing the second fixing portions may be to further achieve the tightening of the terminals **4** and the cables **5**, so as to prevent the copper wires **51** from detaching from the first fixing portions **42** under the action of external force.

Preferably, the first protrusions **44** may be disposed on the inner side of the lower ends of the second fixing portions **40**.

Each of upper ends of the terminals **4** may be provided with a lamp pin contacting portion **41**, and the accommodation space **7** may be internally provided with seizing portions **31** to seize the lamp pin contacting portions **41**. The seizing portions **31** may be provided on either side of the upper ends of the planar walls **34**, and may be grooved notches extending for a certain height from top to bottom.

At least one second protrusion **43** may be further provided on each of outer sides of the terminals **4**, the second protrusions **43** may lean against the arc-shaped walls **32**.

Each of the second protrusions **43** may have an arc-shaped surface. Preferably, each of the second protrusions **43** may have an elastic member with an arc-shaped surface, by disposing the second protrusions **43** on the outer sides of the terminals **4**, the two second protrusions **43** may contact with the arc-shaped walls **32** and the second protrusions **43** may be pressed when the lamp stem **2** is inserted, and when the lamp stem **2** is removed, the second protrusions **43** may rebound and make the terminals **4** easier to resume the positions where the two first protrusions **44** contact one another.

One of ordinary skill in the art would understood that, each of the second protrusions **43** may be made of elastic material, such as can be made of silicone, PU glue or the like.

The terminals **4** may be obliquely disposed within the accommodation space **7**, and the two terminals **4** may exhibit a V-shaped structure.

Since the seizing portions **31** are provided on either side of the ends of the planar walls **34**, after the lamp pin contacting portions **41** are seized in the seizing portions **31**, the pair of terminals **4** are both in an oblique state, and the terminals **4** can move with respect to the cables **5** due to the exist of the oblique state and the U-shaped notches **45**, and thus the lower ends of the terminals **4** can approach each other. Meanwhile, the current circuit may be made in an on-state, since the pair of the first protrusions **44** may be provided on the inner side of the lower ends of the second fixing portions **40**, the cables **5** have a tension of rebounding, and additionally the effect of the second protrusions **43** enables the two first protrusions **44** to contact one another without the need of external force when the lamp stem **2** is removed.

The lamp holder **3** may be provided with a first tightening portion **36** on bottom end to make the pair of the cables **5** go through the tightening portion **36** and to tighten the pair of the cables **5**. The first tightening portion **36** has at least one arc-shaped step protruding inwardly along bottom face of the lamp holder **3**. The lamp holder **3** may be further provided with a second tightening portion **6** on lower portion to tighten the pair of the cables **5**. The second tightening portion **6** has a through hole **62**, and the pair of cables **5** are connected with the lamp holder **3** by going through the through hole **62**.

Specifically, the arc-shaped steps **33** also form a kidney-shaped hole, which can better tightening the cables **5** of cylindrical shape.

Preferably, the through hole **62** may be a kidney-shaped hole, which can also better tightening cables of cylindrical shape, the second tightening portion **6** may be an oval plastic piece. One of ordinary skill in the art would understood that, the through hole **62** may not be limited to a kidney-shaped hole, it may also be rectangular, circular or other shapes, the shape of the plastic piece can also be other shapes such as rectangular, circular, or the like.

One of ordinary skill in the art would understood that, while the exist of the first tightening portion **36** and the second tightening portion **6** fixes the cables **5** to prevent the cables **5** from swinging, the tightening effect of the tightening portions on the cables **5** may force the cables **5** to bend, and after the lamp stem **2** is removed, the pair of the first protrusions **44** may be easier to contact due to the bending effect of the cables **5**.

Round chamfer **61** may be provided on the face of the end portion of the kidney-shaped hole **62** of the second tightening portion **6** to avoid, while the cables may be swinging, damage to the surface of the cables **5** due to the unsmooth end portion of the kidney-shaped hole **62**.

The examples of the present disclosure are described above accompanying the drawings. However, the present disclosure is not limited to the aforesaid detailed embodiments. The above detailed embodiments are by ways of example only, but are not limitative. Under the motivation of the present disclosure, those skilled in the art can also take many forms, without departing from the purpose of the present disclosure and the scopes protected by the Claims, which are all within the protection of the present disclosure.

While various embodiments in accordance with the principles disclosed herein have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of this disclosure should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with any claims and their equivalents issuing from this disclosure. Furthermore, the above advantages and features are provided in described embodiments, but shall not limit the application of such issued claims to processes and structures accomplishing any or all of the above advantages.

Additionally, the section headings herein are provided for consistency with the suggestions under 37 CFR 1.77 or otherwise to provide organizational cues. These headings shall not limit or characterize the embodiment(s) set out in any claims that may issue from this disclosure. Specifically and by way of example, although the headings refer to a "Field of the Disclosure," the claims should not be limited by the language chosen under this heading to describe the so-called field. Further, a description of a technology in the "Background" is not to be construed as an admission that certain technology is prior art to any embodiment(s) in this disclosure. Neither is the "Summary" to be considered as a characterization of the embodiment(s) set forth in issued claims. Furthermore, any reference in this disclosure to "invention" in the singular should not be used to argue that there is only a single point of novelty in this disclosure. Multiple embodiments may be set forth according to the limitations of the multiple claims issuing from this disclosure, and such claims accordingly define the embodiment(s), and their equivalents, that are protected thereby. In all instances, the scope of such claims shall be considered on their own merits in light of this disclosure, but should not be constrained by the headings set forth herein.

The invention claimed is:

1. An illumination system comprising:

a plurality of lamps connected in series, wherein each of the lamps comprises:

a lamp stem;

a lamp holder; and

a pair of cables connected to the lamp holder, wherein each of the pair of cables comprises an end portion;

wherein the lamp holder comprises:

a base extending inwardly and abutting the pair of cables, and

opposing wall surfaces extending from the base, the base and

opposing wall surfaces defining an accommodation space formed therein;

wherein the opposing wall surfaces each have a bottom edge defined by an intersection of the respective opposing wall surfaces and the base;

wherein the opposing wall surfaces, in a cross-sectional view of the lamp holder, comprise substantially

planar surfaces from an attachment area of the respective opposing wall surface to the respective bottom edge;

wherein each cable of the pair of cables comprises a conductive terminal having a lower conductive portion fitted around the cable;

wherein the pair of cables are positioned so the lower conductive portions of the conductive terminals are obliquely disposed to each other in the accommodation space to form a V-shaped structure pressing the lower conductive portions together when the lamp stem is removed from the accommodation space; and

wherein the lamp stem electrically isolates the lower conductive portions when the lamp stem is accommodated in the accommodation space.

2. The illumination system according to claim **1**,

wherein the accommodation space is provided with a tubular first accommodation space in an upper portion, and a second accommodation space in a lower portion;

wherein the second accommodation space is enclosed with two opposing planar walls extending upwardly from the bottom;

wherein the respective opposing wall surfaces comprise arc-shaped walls and are connected to the planar walls; and

wherein the shape of the accommodation space is adapted to an outer profile of the lamp stem.

3. The illumination system according to claim **2**,

wherein each of the conductive terminals comprises an upper portion;

wherein each of the upper portions comprises a lamp pin contacting portion; and

wherein the accommodation space comprises an internal seizing portion to seize a lamp pin contacting portions.

4. The illumination system according to claim **3**,

wherein each of the upper portions of the conductive terminals comprises a first fixing portion;

wherein each of the cables comprises a top end;

wherein each of the top ends comprises a protruding copper wire; and

wherein the protruding copper wires are fixed on the first fixing portions to achieve electrical connection between the conductive terminals and the cables.

5. The illumination system according to claim **4**,

wherein each of the lower conductive portions comprises a tubular second fixing portion;

wherein each of the cables goes through and is disposed within the tubular second fixing portion;

wherein each of the tubular second fixing portion comprises a U-shaped notch, the U-shaped notch being defined in a body of the tubular second fixing portion, an opening of the U-shaped notch extending through the bottom ends of the tubular second fixing portion, which enables swinging of the cables along radial direction of the tubular second fixing portion; and

wherein the U-shaped notches face toward the arc-shaped walls.

6. The illumination system according to claim **5**,

wherein each of the conductive terminals further comprises an outer side;

wherein each outer side comprises a second protrusion; and

wherein the second protrusion leans against one of the arc-shaped walls.

7. The illumination system according to claim **6**, wherein the second protrusions comprise an elastic member with an arc-shaped surface.

8. The illumination system according to claim **1**,

wherein the lamp holder comprises a first tightening portion on a lower portion of the lamp holder to guide the pair of the cables through the first tightening portion and to tighten the pair of the cables; and

wherein the first tightening portion comprises at least one arc-shaped step protruding inwardly along a bottom face of the lamp holder.

9. The illumination system according to claim **8**,

wherein the lamp holder further comprises a second tightening portion on the lower portion of the lamp holder and adjacent to the first tightening portion to tighten the pair of the cables; and

wherein the second tightening portion comprises a through hole, and the pair of cables is connected with the lamp holder by going through the through hole.

10. The illumination system according to claim **1**, wherein the lower conductive portion of each cable is provided with a conductive first protrusion thereon, and the conductive first protrusions being configured to contact one another or separate from each other;

wherein the lamp stem electrically isolates the conductive first protrusions when the lamp stem is accommodated in the accommodation space; and

wherein when the lamp stem is removed from the accommodation space, the conductive first protrusions are electrically connected.

11. A method for manufacturing a lamp comprising:

providing a lamp stem;

providing a lamp holder; and

connecting a pair of cables to the lamp holder, wherein each of the pair of cables comprises an end portion;

wherein the lamp holder comprises:

a base extending inwardly and abutting the pair of cables, and

opposing wall surfaces extending from the base, the base and

opposing wall surfaces defining an accommodation space formed therein;

wherein the opposing wall surfaces each have a bottom edge defined by an intersection of the respective opposing wall surfaces and the base;

wherein the opposing wall surfaces, in a cross-sectional view of the lamp holder, comprise substantially planar surfaces from an attachment area of the respective opposing wall surface to the respective bottom edge;

wherein each cable of the pair of cables comprises a conductive terminal having a lower conductive portion fitted around the cable;

wherein the pair of cables are positioned so the lower conductive portions of the conductive terminals are obliquely disposed to each other in the accommodation space to form a V-shaped structure pressing the lower conductive portions together when the lamp stem is removed from the accommodation space; and

wherein the lamp stem electrically isolates the lower conductive portions when the lamp stem is accommodated in the accommodation space.

12. The method according to claim **11**,

wherein the accommodation space is provided with a tubular first accommodation space in an upper portion, and a second accommodation space in a lower portion;

wherein the second accommodation space is enclosed with two opposing planar walls extending upwardly from the bottom;

wherein the respective opposing wall surfaces comprise arc-shaped walls and are connected to the opposing planar walls; and

wherein the shape of the accommodation space is adapted to an outer profile of the lamp stem.

13. The method according to claim **12**,

wherein each of the conductive terminals comprises an upper portion;

wherein each of the upper portions comprises a lamp pin contacting portion; and

wherein the accommodation space comprises an internal seizing portion to seize the lamp pin contacting portions.

14. The method according to claim **13**,

wherein each of the upper portions of the conductive terminals comprises a first fixing portion;

wherein each of the cables comprises a top end;

wherein each of the top ends comprises a protruding copper wire; and

wherein the protruding copper wires are fixed on the first fixing portions to achieve electrical connection between the conductive terminals and the cables.

15. The method according to claim **14**,

wherein each of the lower conductive portions comprises a tubular second fixing portion;

wherein each of the cables goes through and is disposed within the tubular second fixing portion;

wherein each of the tubular second fixing portion comprises a U-shaped notch, the U-shaped notch being defined in a body of the tubular second fixing portion, an opening of the U-shaped notch extending through the bottom ends of the tubular second fixing portion, which enables swinging of the cables along radial direction of the tubular second fixing portion; and

wherein the U-shaped notches face toward the arc-shaped walls.

16. The method according to claim **15**,

wherein each of the conductive terminals further comprises an outer side;

wherein each outer side comprises a second protrusion; and

wherein the second protrusion leans against one of the arc-shaped walls.

17. The method according to claim **16**,

wherein the second protrusions comprise an elastic member with an arc-shaped surface.

18. The method according to claim **11**,

wherein the lower conductive portion of each cable is provided with a conductive first protrusion thereon, and the conductive first protrusions of the lower conductive portions of the conductive terminals being configured to contact one another or separate from each other;

wherein the lamp stem electrically isolates the conductive first protrusions when the lamp stem is accommodated in the accommodation space; and

wherein when the lamp stem is removed from the accommodation space, the conductive first protrusions are electrically connected.

19. An illumination system comprising:

a plurality of lamps connected in series, wherein each of the lamps comprises:

a lamp stem;

a lamp holder; and

a pair of cables connected to the lamp holder, wherein each of the pair of cables comprises an end portion;

wherein the lamp holder comprises:

a base extending inwardly and abutting the pair of cables, and

opposing wall surfaces extending from the base, the base and

opposing wall surfaces defining an accommodation space formed therein;

wherein the opposing wall surfaces each have a bottom edge defined by an intersection of the respective opposing wall surfaces and the base;

wherein the opposing wall surfaces, in a cross-sectional view of the lamp holder, comprise substantially planar surfaces from an attachment area of the respective opposing wall surface to the respective bottom edge;

wherein each cable of the pair of cables contacts a conductive terminal at a first fixing portion on a first side of the conductive terminal and wherein a first protrusion of the conductive terminal is on a second side of the conductive terminal opposite to the first side of the conductive terminal;

wherein when the lamp stem is accommodated in the accommodation space, the first protrusions of the conductive are electrically isolated from each other; and

wherein when the lamp stem is removed from the accommodation space, the first protrusions of the conductive terminals are electrically connected.

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